

Service Manual

Radio
RF-7D

Ultra-Compact FM/AM Radio



■ SPECIFICATIONS

Frequency Range:	FM 87.5~108 MHz AM 520~1610 kHz (577~186 m)	Power Output:	240 mW (RMS Max)
Intermediate Frequency:	FM 10.7 MHz AM 455 kHz	Speaker:	4 cm (1 1/2") PM Dynamic Speaker
Sensitivity:	FM 6.3 μ V for 50 mW Output AM 126 μ V/m for 50 mW Output	Dimensions:	53.5 (Wide) x 65.8 (High) x 20.7 (Deep) mm (2 1/4" x 2 13/16" x 7 15/16")
Battery:	3 V (Two "AAA" size Penlight Batteries) (National UM-4 or equivalent)	Weight:	80 g (2.82 oz) with batteries
		Impedance:	Speaker 6 Ω Earphone Jack 32 Ω

Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

DISASSEMBLY INSTRUCTIONS



Fig. 1

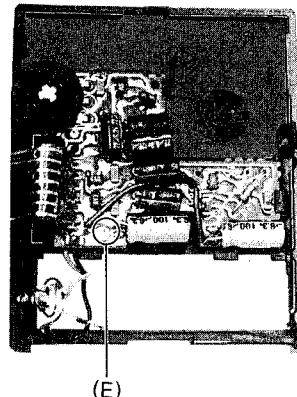


Fig. 4

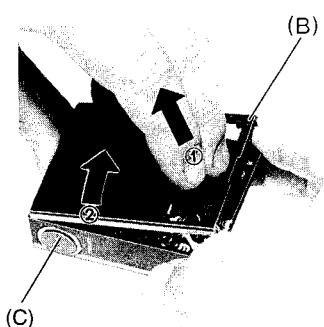


Fig. 2

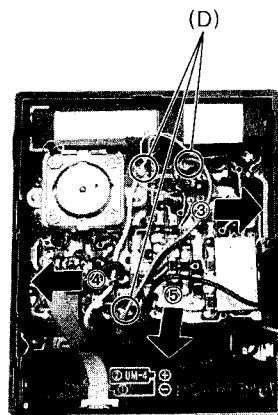


Fig. 3

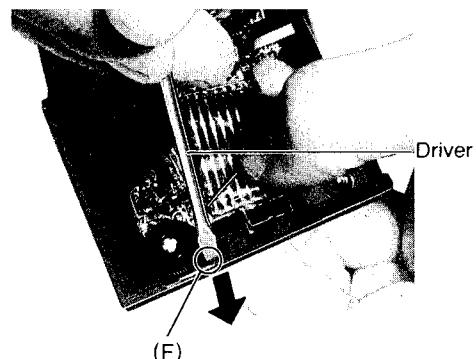


Fig. 5

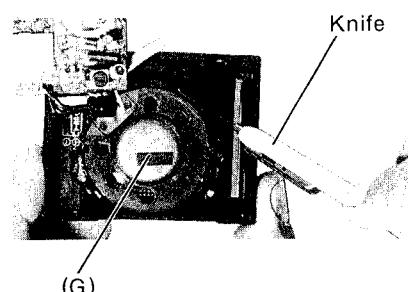


Fig. 6

Procedure	To remove—	Remove	Shown in Fig.—
1		Battery cover (A)×1	1
2	Rear cabinet ass'y.	Remove the rear cabinet ass'y in the direction of arrow ① and ② (B)×1	2
3		Knob (C)×1	2
4	Circuit board.	Unsolder (D)×3	3
5		Push the front cabinet ass'y in the direction of arrow ③, ④ and Remove the catch.	3
6		Remove the circuit board in the direction of arrow ⑤.	3
7		Screw (2×2) (E)×1	4
8	AF circuit board.	Remove the catch in the direction of arrow (F)×1 then remove the AF circuit board.	5
9	Speaker.	Remove the adhesion as shown in fig. 6. (G)×1	6

MEASUREMENTS AND ADJUSTMENTS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT					
Notes:			4. Set power source voltage to 3 volts DC. 5. Output of signal generator should be no higher than necessary to obtain an output reading.		
SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING (DISTANCE)	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
CONNECTIONS FREQUENCY					
(1)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz.	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T2 (IFT) Adjust for maximum output.
AM-IF ALIGNMENT					
(2)	"	511 kHz	Tuning capacitor fully closed.	"	L6 (OSC Coil)
(3)	"	1650 kHz	Tuning capacitor fully open.	"	CT4 (OSC Trimmer)
(4)	"	550 kHz	Tune to signal.	"	(*) L5 (ANT Coil) Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
(5)	"	1500 kHz	Tune to signal.	"	CT3 (ANT Trimmer) Adjust for maximum output. Repeat steps (2)~(5).
(*) Cement antenna bobbin with wax after completing alignment.					
FM-IF ALIGNMENT					
(6)	High side thru. 0.001 μ F to point ∇ . Negative side to point ∇ .	10.7 MHz (SWP.)	Point of non-interference. (on/about 90 MHz).	Connect vert. amp. of scope to point ∇ . Negative side to point ∇ .	T1 (FM 1st IFT) Adjust for maximum amplitude. (Refer to fig. 7).
(7)	"	"	"	"	T3 (FM 2nd IFT) Adjust for maximum amplitude. (Refer to fig. 8).
FM-RF ALIGNMENT					
(8)	Connect point ∇ through FM dummy antenna. Negative side to point ∇ .	87.5 MHz	Tuning capacitor fully closed.	Output meter across voice coil.	L4 (OSC Coil) (*) Adjust for maximum output.
(9)	"	108 MHz	Tuning capacitor fully open.	"	CT2 (OSC Trimmer)
(10)	"	90 MHz	Tune to signal.	"	L3 (ANT Coil)
(11)	"	106 MHz	Tune to signal.	"	CT1 (ANT Trimmer) (*) Adjust for maximum output. Repeat steps (8)~(11).
(12)	"	108 MHz	Tuning Capacitor fully open	"	CT5 (OSC Trimmer) Adjust for maximum output before assembling the front cabinet.
(*) Three output responses will be present; proper tuning is the center frequency.					

■ ALIGNMENT POINTS

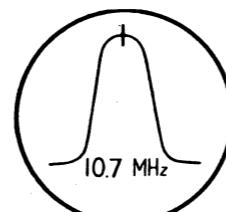


Fig. 7

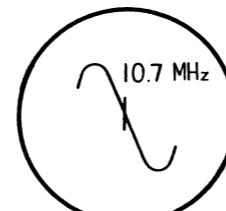


Fig. 8

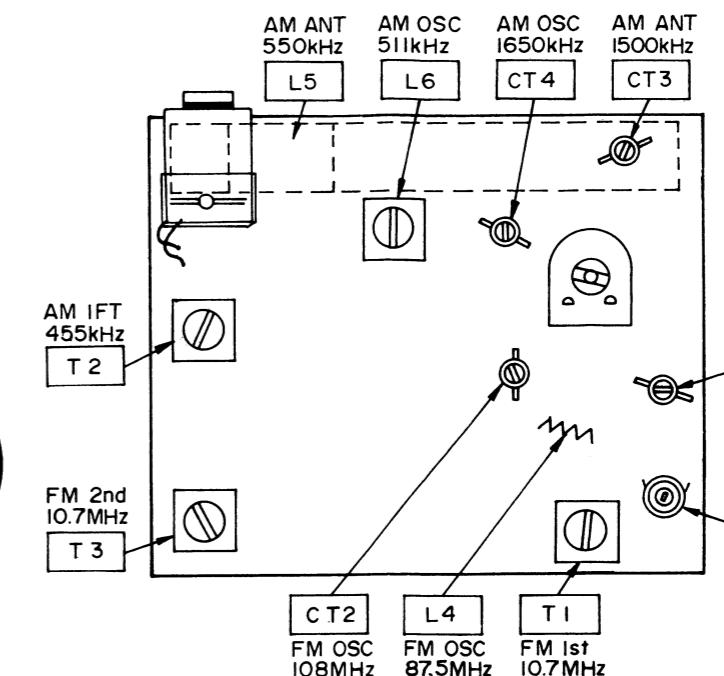


Fig. 9

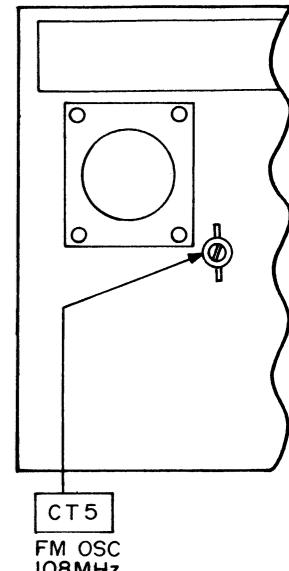


Fig. 10

CABINET PARTS LOCATION

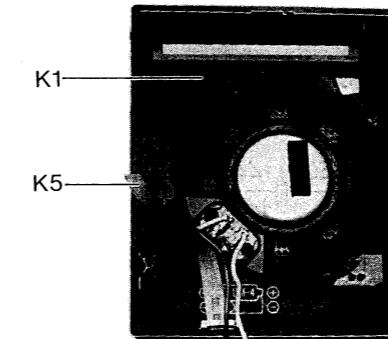


Fig. 11

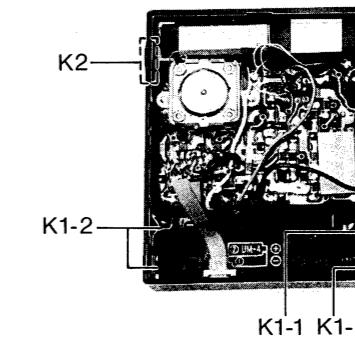


Fig. 12

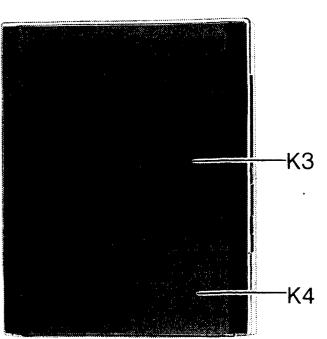


Fig. 13

ELECTRICAL PARTS LOCATION

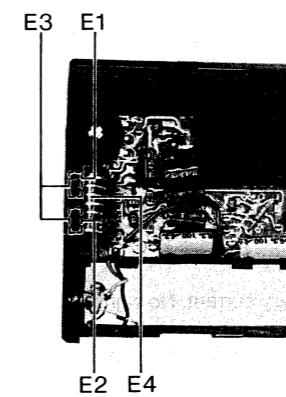


Fig. 14

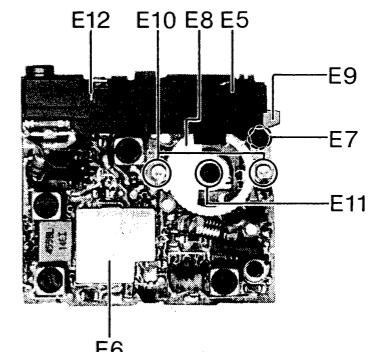
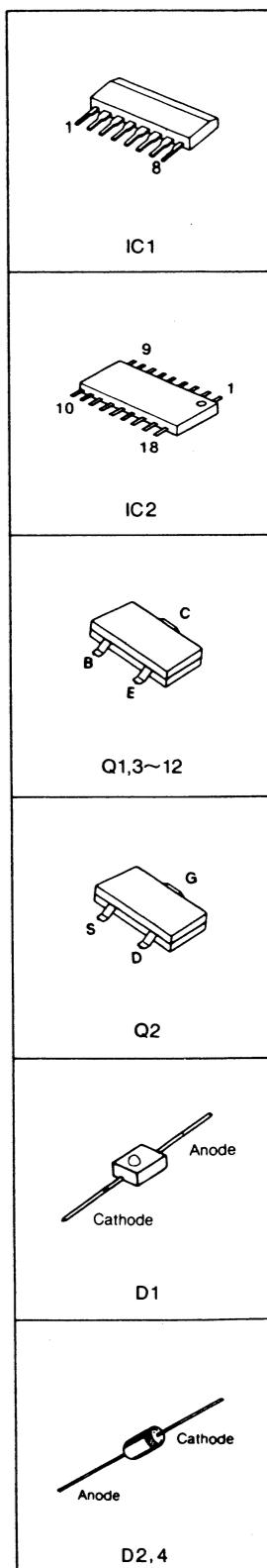
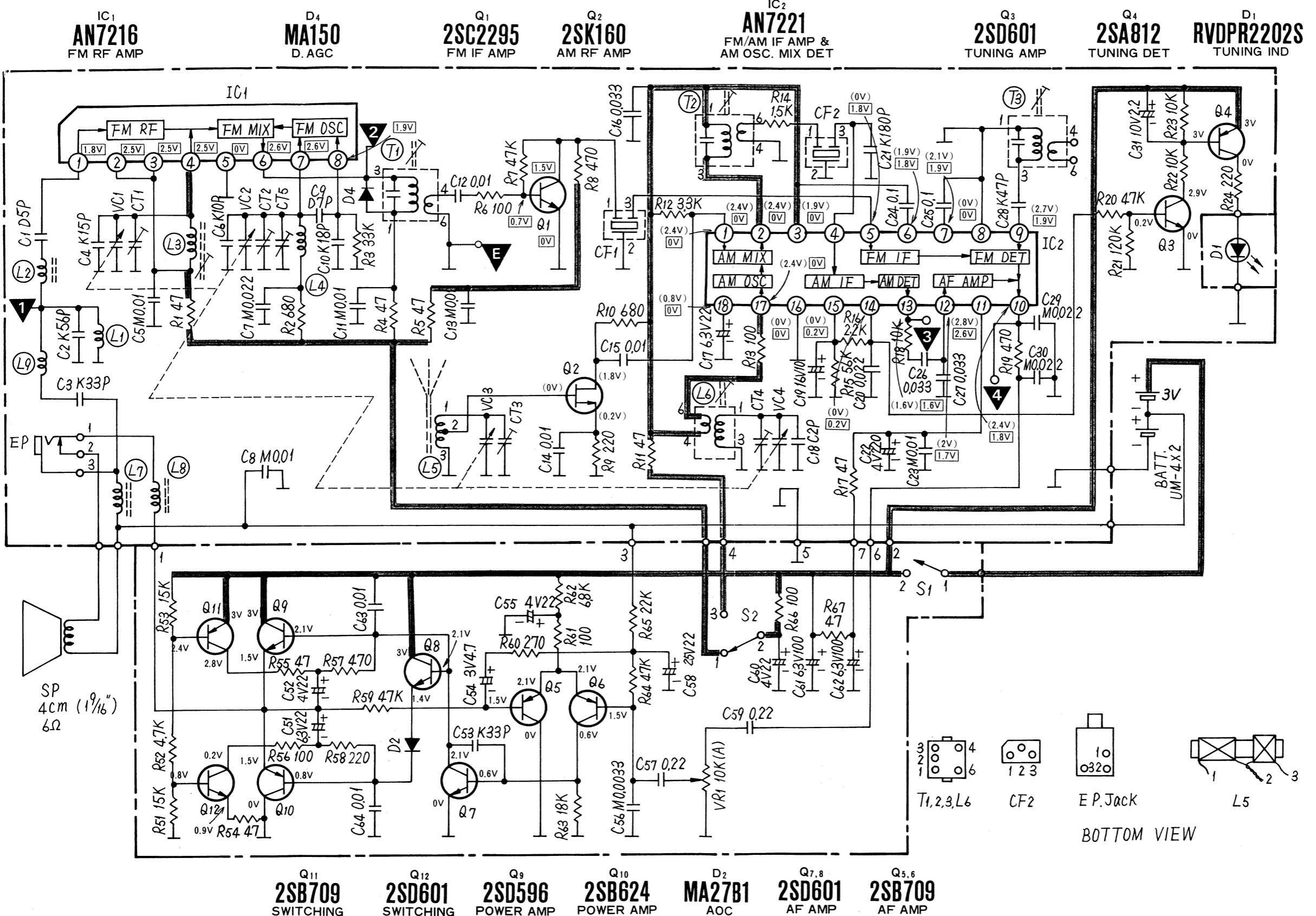
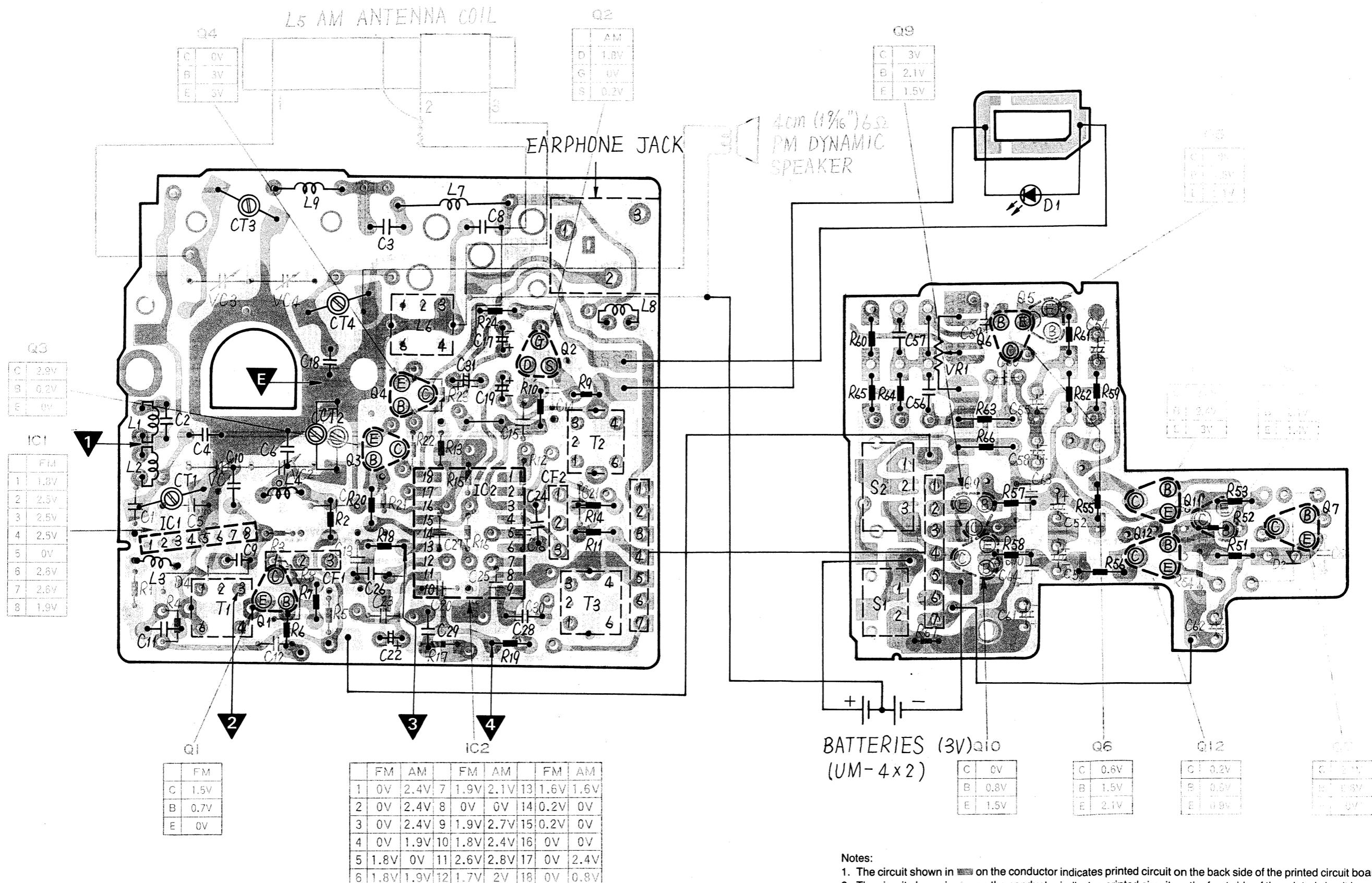


Fig. 15

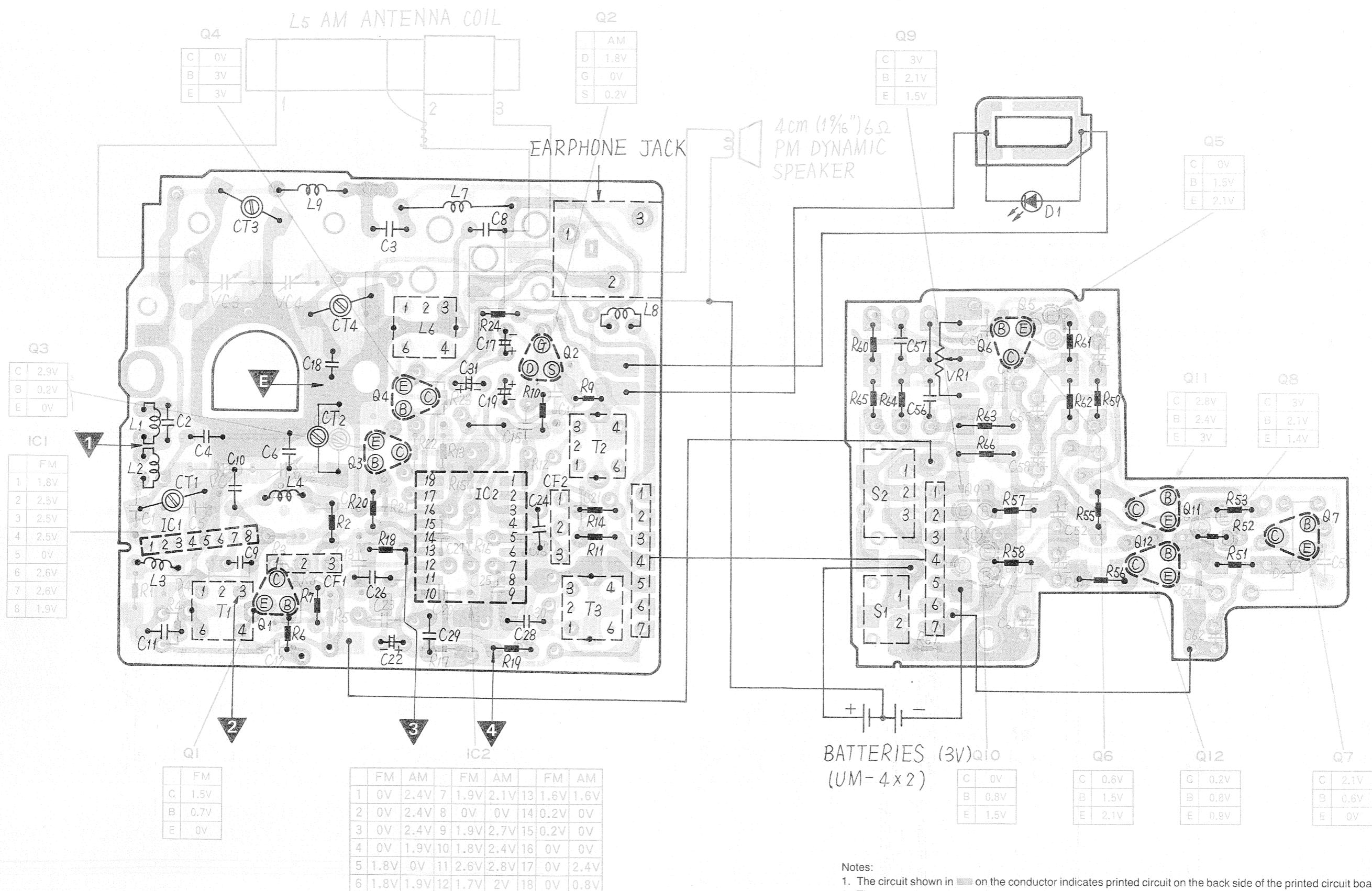
SCHEMATIC DIAGRAM MODEL RF-7D



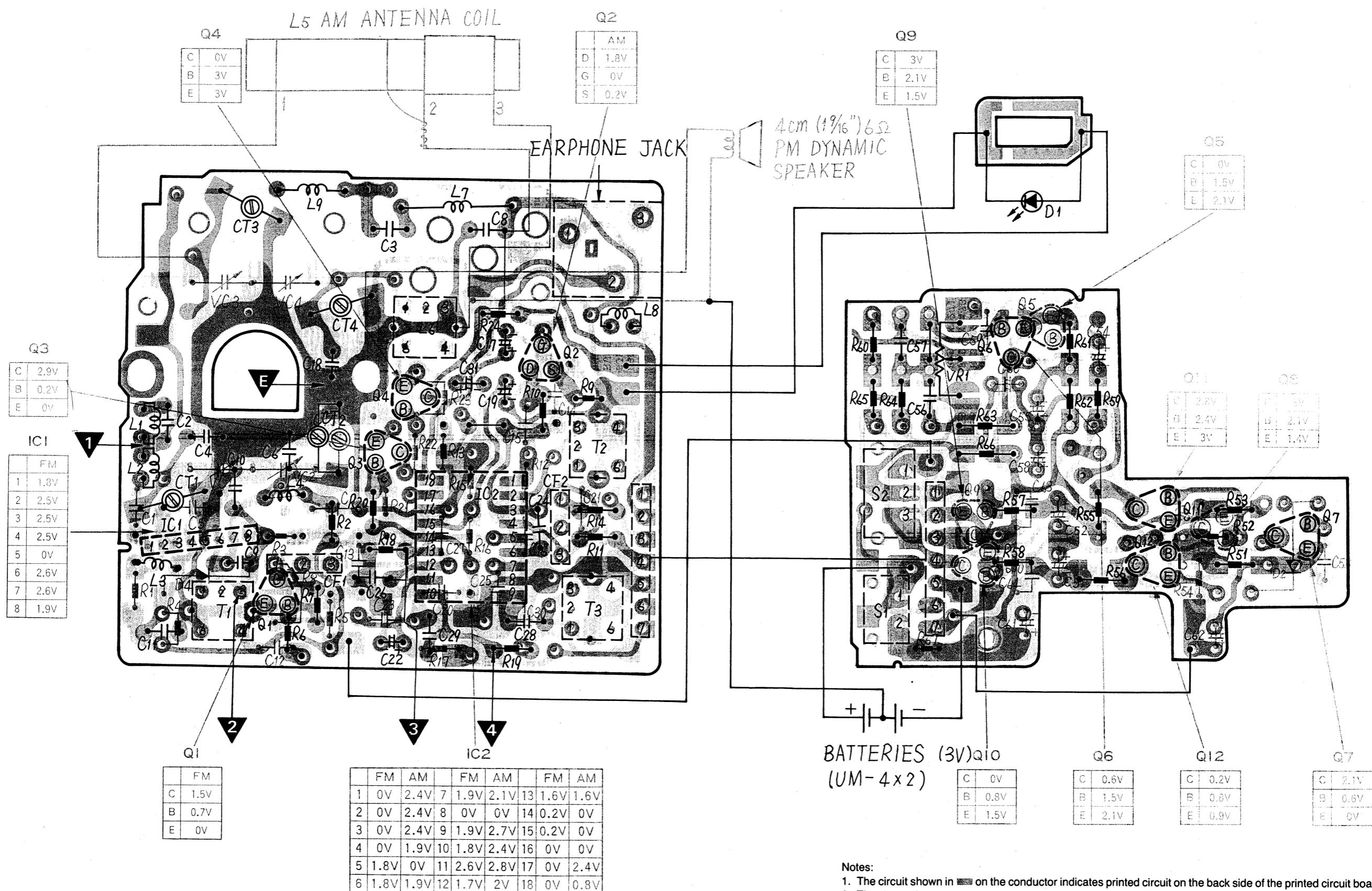
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-7D



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-7D



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-7D



Notes:

1. The circuit shown in on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in on the conductor indicates printed circuit on the front side of the printed circuit board.
3. Components on back of P.B are identified by black symbols.
4. Components on front of P.B are identified by blue symbols.
5. The symbols () shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

REPLACEMENT PARTS LIST.....Model RF-7D

(RD83022063C2)

NOTES: 1. Important safety notice.
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components use only manufacturer's specified parts.
2. The Δ mark indicates service standard parts and may differ from production parts.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
IC1	AN7216	INTEGRATED CIRCUITS, IC	1	
IC2	AN7221	INTEGRATED CIRCUITS, IC	1	
Q1	2SC2295B	Transistor (Si)	1	
Q2	2SK160K5	Transistor (Si)	1	
Q3	2SD601Q	Transistor (Si)	1	
Q4	2SA812M5	Transistor (Ge)	1	
Q5	2SB709S	Transistor (Ge)	1	
Q6	2SD601S	Transistor (Ge)	1	
Q7	2SD601D	Transistor (Si)	1	
Q8	2SD601DV3	Transistor (Si)	1	
Q9	2SD596D	Transistor (Ge)	1	
Q10	2SB62-BV3	Transistor (Ge)	1	
Q11	2SB709R	Transistor (Si)	1	
Q12	2SD601S	Transistor (Si)	1	
D1	RVDP2202S	Diode (Si)	1	
D2	MA27B1	Diode (Si)	1	
D4	MA161	Diode (Si)	1	
L2	RLQ2J47M	COILS AND TRANSFORMERS		
L3	RLO4N125	Coil, Choke	1	
L4	RLO4N162	Coil, FM Tuning	1	
L5	RLF2Y15	Coil, FM Oscillator	1	
L6	RLQ2A3	Coil, AM Antenna	1	
L7	RLQ2A100K	Coil, AM Oscillator	1	
L8	RLQ2Z2G3	Coil, Choke	1	
T1	RL14A19	I.F.T., FM	1	
T2	RL12A15	I.F.T., AM	1	
T3	RL14A19	I.F.T., FM	1	
VRL	EVLAPAAA02A14	VARIABLE RESISTOR, 10k Ω (A)	1	
VC1~4	RCV4LC3FINZS	VARIABLE CAPACITORS		
CT1~5	RCVTSW3H	Tuning Capacitor	5	
CF1	RVF107NAZ	CERAMIC FILTERS	1	
CF2	RVFCFMS455B	Ceramic Filter	1	
EAS4P102SK	SPEAKER	Speaker, 4cm (1-1/2"). 6 Ω	1	

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Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C5	ECUX1H103MD	0.01 50V Chip	1	
C6	ECUX1H100KC	0.10 P	1	
C7	ECUX1H223MD	0.022 "	1	
C8	ECUX1H103MD	0.01 "	1	
C9	ECUX1H070DC	0.7 P	1	
C10	ECUX1H180KC	18 P	1	
C11	ECUX1H103MD	0.01 "	1	
C12	ECUX1H103ZF	0.01 "	1	
C13	ECUX1H103MD	0.01 "	1	
C14	ECUX1H103ZF	0.01 "	1	
C15	ECUX1H103ZF	0.033 "	1	
C16	ECUX1H333ZF	0.033 "	1	
C17	ECEA1ES220	22 25V Electrolytic	1	
C18	ECUX1H202CC	2 P 50V Chip	1	
C19	ECEA1HS100	10 50V Electrolytic	1	
C20	ECUX1H223ZF	0.022 " Chip	1	
C21	ECUX1H181KD	180 P 4V Electrolytic	1	
C22	ECUX1H103MD	0.01 50V Chip	1	
C23	ECUX1H104MD	0.1 " Chip	1	
C24	ECUX1H104MD	0.1 " Chip	1	
C25	ECUX1H333ZF	0.033 "	1	
C26	ECUX1H333ZF	0.033 "	1	
C27	ECUX1H470KC	4.7 P "	1	
C28	ECUX1H223MD	0.022 "	1	
C29	ECUX1H223MD	0.022 " Electrolytic	1	
C30	ECUX1H223MD	2.2 10V Electrolytic	1	
C31	ECEA1ES220	22 25V "	1	
C32	ECBSFOGB226	22 4V "	1	
C33	ECUX1H330KC	33 P 50V Chip	1	
C34	ECSFOFM475	4.7 6.3V Electrolytic	1	
C35	ECSFOGR226	22 4V "	1	
C36	ECDX1H332MD	0.0033 50V Chip	1	
C37	ECUX1E224ZF	0.22 25V "	1	
C38	ECEA1ES220	22 50V Electrolytic	1	
C39	ECUX1E224ZF	0.22 4V Chip	1	
C60	ECBSFOBE226	22 10V Electrolytic	1	
C61	ECEA1AS101	100 50V Chip	1	
C62	ECUX1H103ZF	0.01 50V Chip	1	
C63	ECUX1H103ZF	0.01 50V Chip	1	
C64	ECUX1H103ZF	0.01 50V Chip	1	
K1	RYMF7DXGZ	CABINET PARTS		
K1-1	RJCS442	Front Cabinet Ass'y	1	
K1-2	RJCS945Z	Terminal, Battery + Side	1	
K1-3	RJCS947Z	Spring, Battery - Side	1	
K2	RYTF7DXGZ	Tuning Knob Ass'y	1	
K3	RKF609V	Cabinet Cover	1	
K4	RK231Z	Battery Cover	1	
K5	RHS272	Ribbon	1	
E1	RYV640Y	ELECTRICAL PARTS	1	
E1	RYV640Y	Cover, Switch	1	

RF-7D RF-7D

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Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C1	ESDI14163	SWITCHES	1	
S2	ESDI14164	Switch, Power Switch, Band	1	
J1	RJJC3Y	JACK, Earphone & Antenna	1	
		RESISTORS (Value is in OHMS)		
R1	RRD18XXK470	4.7 1.8W Chip	1	
R2	RRD18XXK681	680 33 k	1	
R3	RRD18XXK333	47	1	
R4	RRD18XXK470	47	1	
R5	RRD18XXK101	100	1	
R6	RRD18XXK473	47 k	1	
R7	RRD18XXK471	470	1	
R8	RRD18XXK221	220	1	
R9	RRD18XXK681	680	1	
R10	RRD18XXK470	47	1	
R11	RRD18XXK332	3.3 k	1	
R12	RRD18XXK32	100	1	
R13	RRD18XXK101	1.5 k	1	
R14	RRD18XXK152	56 k	1	
R15	RRD18XXK563	2.2 k	1	
R16	RRD18XXK222	47 k	1	
R17	RRD18XXK470	10 k	1	
R18	RRD18XXK103	10 k	1	
R19	RRD18XXK471	470	1	
R20	RRD18XXK73	47 k	1	
R21	RRD18XJ124	120 k	1	
R22	RRD18XXK103	10 k	1	
R23	RRD18XXK221	220	1	
R24	RRD18XXK153	15 k	1	
R51	RRD18XXK472	4.7 k	1	
R52	RRD18XXK153	15 k	1	
R53	RRD18XXK470	47	1	
R54	RRD18XXK473	47	1	
R55	RRD10TJ101	100	1	
R56	RRD18XXK71	470	1	
R57	RRD18XXK221	22 k	1	
R58	RRD18XXK473	270	1	
R60	RRD18XXK271	100	1	
R61	RRD18XXK101	6.8 k	1	
R62	RRD18XXK183	18 k	1	
R63	RRD10TJ101	47 k	1	
R64	RRD18XXK223	22 k	1	
R65	RRD18XXK101	100	1	
R66	RRD18XXK150KC	15 p	1	
R67	RRD18XXK470	47	1	
		CAPACITORS (Value is in MICRO FARADS except P-PICO FARADS)		
C1	ECUX1H050DC	5 P 50V Chip	1	
C2	ECUX1H560KC	56 P "	1	
C3	ECUX1H330KC	33 P "	1	
C4	ECUX1H150KC	15 p "	1	
		ACCESORIES		
	RSA209Z	FM Antenna Lead	1	
	XEH1C2-D	Earphone Case	1	
	RQD198Z	Rubber	1	
		PACKING MATERIALS		
	RPK1517Z	Gift Box	1	
	RPK1518Z	Display Stand	1	
	RPN3924Z	Pad Cover	1	
	RPE479Z	Pointer Ass'y	1	
	RQX4115Z	PRINTED MATERIAL Instruction Book	1	
K1	RYMF7DXGZ	CABINET PARTS		
K1-1	RJCS442	Front Cabinet Ass'y	1	
K1-2	RJCS945Z	Terminal, Battery + Side	1	
K1-3	RJCS947Z	Spring, Battery - Side	1	
K2	RYTF7DXGZ	Tuning Knob Ass'y	1	
K3	RKF609V	Cabinet Cover	1	
K4	RK231Z	Battery Cover	1	
K5	RHS272	Ribbon	1	
E1	RYV640Y	ELECTRICAL PARTS	1	
E1	RYV640Y	Cover, Switch	1	